

REQUEST FOR PROPOSALS

North Dakota Natural Gas Production and Transportation Study

Purpose

The North Dakota Pipeline Authority would like to study the production of natural gas from the Bakken and Three Forks formations and the associated impact on regional interstate pipeline systems. Some early production trends from the Bakken and Three Forks formations indicate that a well's crude oil and natural gas resources may not follow the same decline curve, thus greatly impacting future natural gas production volumes and potentially straining existing regional natural gas transmission infrastructure.

Background

The Bakken and Three Forks Formations are most widely known for their immense oil resources. A lesser known fact is that these two formations are also rich in associated natural gas. During the early 2000's, North Dakota's natural gas production was holding steady around 150 million cubic feet per day (MMCFD). North Dakota's natural gas production has risen dramatically with the development of the Bakken and Three Forks and hit an all-time record of over 521 MMCFD in November 2011. The new record is not anticipated to stand long as regional operators continue to expand their drilling programs and completion techniques improve.

Williston Basin natural gas produced in the United States currently has three transportation options out of the basin. One transportation route is via the Williston Basin Interstate Pipeline system to various city gates and pipeline interconnects in the Northern Rockies and Great Plains. The second transportation route includes the shipment of natural gas on the Northern Border Pipeline system. The Northern Border Pipeline has several receipt/delivery locations within the state of North Dakota. The third option is the Alliance Pipeline which currently has one North Dakota interconnect with the Prairie Rose Pipeline near Bantry. *(See the supplemental information at the end of this RFP for additional information on North Dakota's gas transmission pipelines)*

Future natural gas production forecasts by the North Dakota Pipeline Authority and industry discussions indicate the currently operating natural gas transmission pipeline infrastructure may not have adequate capacity to meet all of the Williston Basin natural gas production in the coming years. The North Dakota Pipeline Authority actively supports or encourages a variety of expansion options, including:

1. expanding existing pipeline infrastructure;
2. construction of new pipeline systems;
3. alternate uses of natural gas such as onsite or localized electrical generation.

Objective

The North Dakota Pipeline Authority is seeking a study/assessment of the expected reservoir performance of a typical Bakken and Three Forks well and a comprehensive review of the existing natural gas transmission pipelines currently operating in the region.

The study/assessment must be completed by July 15, 2012.

The study/assessment should include at a minimum:

- 1) a comprehensive reservoir engineering review of the gas oil ratio and natural gas decline curve of a typical Bakken and Three Forks well throughout its expected life;
- 2) at least three forecasted natural gas production scenarios for the entire state of North Dakota out to the year 2025 and the assumptions used to create each forecast;
- 3) a reservoir engineering analysis of how the percentage of natural gas liquids contained in the Bakken and Three Forks gas may or may not change throughout a typical well's life;
- 4) a comprehensive review of the current pipeline infrastructure including receipts/deliveries, storage volumes, pipeline tariffs, pipeline contract terms/length, and commodity prices;
- 5) a comprehensive review of whether natural gas produced in North Dakota is expected to have to compete with natural gas produced in adjacent regions for space on the existing pipeline infrastructure;
- 6) an economic analysis of the resulting natural gas price structure in North Dakota should a competition for pipeline space occur with adjacent regions;
- 7) recommended course(s) of action, based on the results of the study.

Proposal Requirements

1. identification of the individuals that would work on the study and information on the qualifications of those individuals;
2. a listing of comparable projects that the individuals identified above have completed in the past three years and access to samples of comparable studies;
3. names and telephone numbers of at least two individuals for which the firm has provided comparable services during the past three years;
4. total costs to conduct the study;
5. a separate total cost for each presentation conducted in North Dakota, with a minimum of one presentation to the North Dakota Oil and Gas Research Council in Bismarck, ND;
6. final analysis and executive summary to be presented in electronic form and two hardcopies;
7. a PowerPoint file of the study results and images for use by the State of North Dakota.

Proposal Timeline

Proposals are due February 29, 2012 and must be delivered in electronic format to kfine@nd.gov. Additionally, five copies must be submitted in paper format to:

Karlene Fine, Executive Director
North Dakota Industrial Commission
State Capitol – 14th Floor
600 East Boulevard
Bismarck, ND 58505

Supplemental Information on North Dakota's Natural Gas Transmission Pipelines

Alliance Pipeline: The Alliance Pipeline is a high pressure, large diameter natural gas pipeline that originates in British Columbia, Canada and terminates at the Aux Sable gas processing plant near Chicago, IL. The Alliance Pipeline transports “dense gas” or gas that still contains high BTU natural gas liquids, such as propane and butane. In February 2010, the Alliance Pipeline began transporting rich natural gas from North Dakota via a new interconnect with Aux Sable Midstream's Prairie Rose Pipeline near Bantry, North Dakota. The 36 inch diameter United States portion of the pipeline has a certified capacity of 1.513 billion cubic feet per day (BCFD) and had 188 MMCFD of capacity available prior to the Prairie Rose Pipeline startup (Alliance, 2009). On Jan 25, 2012 Alliance filed their FERC 7C application for the Tioga Lateral pipeline. With an expected start up in mid-2013, the 79 mile Tioga Lateral will transport up to 120 MMCFD from the Tioga, ND area to the Alliance Pipeline near the Canadian Border. The Alliance Pipeline has two North Dakota delivery points located at Rosholt and Hankinson.

Northern Border: The Northern Border Pipeline, owned by TC Pipelines and ONEOK Partners, is a 1,249 mile pipeline originating at the Port of Morgan in Montana and terminating near North Hayden, Indiana. The pipeline has a system receipt capacity of 2.37 BCFD, a large portion of which is supplied with Canadian natural gas through a receipt point with the Foothills Pipeline at the Port of Morgan. The Williston Basin Interstate Pipeline interconnects with the Northern Border Pipeline in North Dakota in three locations, Charbonneau, Manning, and Glen Ullin. The 42 inch diameter Northern Border Pipeline also receives gas deliveries in North Dakota from Bear Paw Energy at Ft. Buford, Hess at Watford City, and Dakota Gasification Co. at Hebron (Northern Border, 2010).

Williston Basin Interstate Pipeline: The Williston Basin Interstate Pipeline Co. operates 3,367 miles of natural gas transmission pipelines throughout North Dakota, Montana, Wyoming, and South Dakota. This network of pipelines plays a vital role in North Dakota's natural gas industry. It contains eleven interconnecting points with other regional pipelines and can also deliver natural gas to local distribution companies or natural gas storage fields. Well positioned throughout western North Dakota, the Williston Basin Interstate Pipeline has been able to expand its operating capabilities without needing to place much new pipe in the ground. In December of 2008, Williston Basin Interstate Pipeline completed the first phase of its “Bakken Expansion” which added an additional 32 MMCFD (expandable to 60 MMCFD) of capacity to their North Dakota system by interconnecting to the Northern Border Pipeline at Charbonneau. An additional 7 MMCFD was added to the “Bakken Expansion” in 2011. In December 2008, the “Sheyenne Expansion” added an additional 10 MMCFD of capacity to their system by increasing compression and deliveries in eastern North Dakota. Lastly, in February 2010, an open season was held to increase firm deliverability from its Baker gas storage field in eastern Montana. Along with the gas storage field upgrades, Williston Basin proposed a pipeline expansion to transport the increased firm storage volumes to

the Manning interconnect with the Northern Border Pipeline. The project went into service in late 2011 with an initial capacity of 35 MMCFD.

Prairie Rose Pipeline: While the North Dakota Public Service Commission determined the Prairie Rose Pipeline to be a gathering pipeline, the Pipeline Authority believes the uniqueness and location of the pipeline make it worth noting in this section. The 75 mile, 12 inch pipeline went into service February 2010 and has the capability to transport over 110 MMCFD of unprocessed natural gas per day from Mountrail County to an interconnect with the Alliance Pipeline near Bantry, ND. The Prairie Rose Pipeline and associated Palermo conditioning plant is currently owned and operated by Aux Sable Midstream.

Bison Pipeline: TransCanada operates the 302 mile, 30 inch Bison Pipeline. The pipeline was built to connect natural gas production in the Powder River Basin of Wyoming to the Northern Border Pipeline in Morton County North Dakota. The pipeline has an initial capacity of 477 MMCFD and could be expanded to 1 BCFD. No natural gas produced in North Dakota is currently carried on the Bison Pipeline.